

AMENDMENTS TO THE SPECIFICATION

Please replace the title on page 1 with the following amended title:

METHOD OF PRODUCING NITRIDE-BASED HETEROSTRUCTURE DEVICES

Please replace the section starting on page 1, line 4 with the following amended sections:

REFERENCE TO PRIOR APPLICATIONS

The current application is a divisional of co-pending U.S. patent application serial no. 09/966,563, filed on 09/27/2001, which claims the benefit of U.S. priority to co-pending provisional application serial number 60/235,565, filed on 09/27/2000.

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Please replace the paragraph starting on page 4, line 9 with the following amended paragraph:

~~Fig. 1 shows Figs. 1a and 1b show~~ the schematics of lattice mismatch (Fig. 1a) and band offset (Fig. 1b) in AlGaN and InGaN grown on GaN.

Please replace the paragraph starting on page 6, line 3 with the following amended paragraph:

Referring now to Figure 1 Figures 1a and 1b, the schematics of lattice mismatch and band offset in AlGaN and InGaN grown on GaN are shown. As shown in (a) Figure 1a, strain free growth of 50% AlGaN on GaN 10 yields a positive lattice mismatch of roughly 0.003 nm. However, strain free growth of only 10% InGaN on GaN 12 is required to yield a similar negative lattice mismatch. As shown in (b) Figure 1b, the same 50% AlGaN on GaN 14 has a band offset of about 1.4 eV while the same 10% InGaN on GaN 16 has a band offset of only about 0.2 eV. Based on a linear extrapolation of lattice constants as functions of molar fractions, it is estimated that quaternary $\text{Al}_x\text{In}_y\text{Ga}_{1-x-y}\text{N}$ layers with an Al/In mole fraction ratio of 5 should be nearly lattice matched to GaN while the band offset will be about 1.2 eV.

Please replace the title on page 21 with the following amended title:

METHOD OF PRODUCING NITRIDE-BASED HETEROSTRUCTURE DEVICES